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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|------------------------|---------------------|------------------|
| 10/565,256 | 01/19/2006 | Donald Edwin Hargraves | 2974/SUS | 7969 |
| 23638 7590 12/27/2007 ADAMS INTELLECTUAL PROPERTY LAW, P.A. Suite 2350 Charlotte Plaza 201 South College Street CHARLOTTE, NC 28244 | | | | |
| EXAMINER ELAADIL LAHCEN | | | | |
| ART UNIT | | PAPER NUMBER | | |
| 4114 | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/565,256

Applicant(s)

HARGRAVES ET AL.

Examiner

LAHCEN ELAADIL

Art Unit

4114

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SE/IB)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date 1/19/2006 and 4/13/2006

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because it does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.
2. The disclosure is objected to because of the following informalities: The description of the drawings taken from the prior and submitted in the current application (where they are labeled as prior art in figures 5 and 6) must be properly identified or provided if they are non-patent documents or foreign patents. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 9 and 12-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding to claims 9 and 18, they fail to specify the hardness scale relied upon when determining the hardness of the valve elements. For examination purposes, the examiner will consider that Shore A scale was used when testing the hardness.

Regarding to claim 12, it is not clear what the stroke length is meant to encompass, because the range of the stroke length given in Claim 12 contradicts with the range given in Claims 10 and 11.

Claims 13-17 are rejected for incorporating the above errors from their respective parent claim by dependency.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by applicant's admitted prior art (figures 5 and 6).

Regarding claims 1, the applicant's admitted prior in art discloses, in figures 5 and 6, a valve assembly comprising a pump chamber (12) having a first recess formed therein; a pump head (10) having a second recess formed therein, wherein the second recess cooperates with the first recess to define a valve compartment including a valve pocket (34) and an opposed valve seat (32); a flexible valve element (28) disposed between the first and second recesses and adapted to move between a closed position against the valve seat (32) which prevents fluid flow and an open position away from the valve seat (32) which permits fluid; the dimensions of the valve compartment (34) are selected to limit the movement of the valve element in the open position (*see figure 6*).

Regarding claim 2, it is to be noted that it is inherent that the construction of the valve assembly indicated above would apply for the inlet valve as well as for the outlet valve just by rearranging the construction of the pump chamber and the pump head, which will enable one of the valves to function as an inlet valve and the other an outlet valve allowing fluid flow in two but opposite directions. Consequently (regarding claim 3), it is inherent that in a pump at least one of the valves has to be always in a closed position while the other is opened for fluid transfer.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (figures 5 and 6).

Regarding to claims 10-12, the applicant's admitted prior art teaches the structure of the valve assembly in claims 10 and 11 which is previously rejected in claims 1 and 2. In addition, the prior art also teaches that the valve elements (28) have a selected thickness. It is to be noted that figures 5 and 6 do not disclose that the stroke length of the valve elements is less than about 1.6 or ranged from about 0.19 to about 0.93 times the thickness of one of the valve elements in terms of numerical values. However, since the general conditions of the claimed invention are disclosed in the prior art, the examiner takes position that the claimed numerical values are merely an optimum or workable range which involves a routine skill in the art and would have been obvious to one of ordinary skill in the art. Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made with the motivation of limiting the stroke length of the valve elements to conduct multiple experiments using different flexible materials with different thicknesses in order to deduce an optimum or workable range for the stroke length.

10. Claims 4-9 and 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (figures 5 and 6) in view of Brand et al. (US Pat. No. 6,089,272) and Knox et al. (US Pat. No. 5,217,797).

Regarding claims 4-8 and 13-17, the applicant's admitted prior of the valve assembly does not disclose the material the valve elements are made out of. However, the reference of Brand et al., which is directed to a check valve assembly, and the reference of Knox et al., which is directed to a diaphragm construction for a pump or a valve, disclose that the valve element could be constructed from an elastomeric material, ethylene propylene diene terpolymer (diene side chain), fluoroelastomer, perfluoroelastomer, and silicone. *See Brand et al. column lines 28-35; and Knox et al. column 1 lines 50-60, columns 4 line 61 to column 5 line 6, and column 11 claim 2.*

Regarding claims 9 and 18, Brand et al. teaches in the disclosure that the valve elements have a durometer hardness from about 30 to 100 on the shore A scale, which covers the range claimed. *See Brand et al. column 3 lines 35-40.*

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Pelmulder et al. (US Pat. No. 4,712,583) disclose a valve assembly in which the valve element is made out of an elastomeric material. Na et al. (Pub. No. US 2003/0194337 A1) disclose a valve element made out of an elastomeric material which abuts against a restricting protrusion (263) that limits its stroke length.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lahcen Elaadil whose telephone number is (571) 270-3546. The examiner can normally be reached on Monday-Friday 7:30am-5:00pm (Eastern Time).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joe Cheng can be reached on 571-272-4433. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

EL
12/20/2007

/Joe H Cheng/
Supervisory Patent Examiner
Art Unit 4114